

## REMARKS

The applicants respectfully request that the Examiner telephone the undersigned attorney of record if the Examiner believes that the above Amendment in light of the following remarks does not place the case in condition for allowance.

The Examiner has objected to claims 4 and 23 for lack of antecedent basis. The applicants have amended claims 4 and 23 accordingly. No limitations have been added thereby.

The Examiner has rejected claims 11-12, 14, and 17 as being anticipated by Wu et al. (6,023,340). According to the Examiner, in Fig. 3d Wu discloses an optical probe having a substantially uniform cone with a 45 degree face relative to the longitudinal axis. As shown by the attached drawing taken from Fig. 3d of the Wu patent, the biconical probe of Fig. 3d has two conical surfaces. The conical surface having the tip is angled at approximately 60 degrees relative to the longitudinal axis, while the second conical surface is angled at 10 degrees relative to the longitudinal axis. Thus, claims 11, 12, 14, and 17 are clearly not anticipated by the Wu et al. reference.

The Examiner has rejected claim 18 as being anticipated by Sahagen (5,526,112). According to the Examiner, Sahagen provides an optical probe “having a distal end comprising a paraboloid, a portion of a sphere...” The applicants respectfully traverse this rejection for the following reason. As may be seen with reference to

<http://www.cogsci.princeton.edu/cgi-bin/webwn2.0?stage=1&word=paraboloid>, the definition of a “paraboloid” is “a surface having parabolic sections parallel to a single coordinate axis and elliptic sections perpendicular to that axis”. A sphere, or a portion of a sphere does not meet the definition of a paraboloid. Thus, claim 18 clearly is not anticipated by Sahagen.

The Examiner has also rejected claims 18-19 as being anticipated by Fig. 7 of Griffin (6,246,817). Fig. 7 shows an optical fiber 18 which tapers to a tapered section 32 and is encased in a fused quartz ferrule 40. The end of the tapered section 32 is provided with a lens surface 44 which presents a small portion of a sphere. The ferrule 40 provides an additional portion of a sphere such that together, the fiber and ferrule appear to present a hemisphere. Claim 18 as now amended requires the fiber to have a hemispherical or paraboloidal distal end. Clearly, the fiber 18 of Griffen is not hemispherical (as it presents only a small portion of a sphere) or paraboloidal (as it is spherical and does not meet the limitations of being paraboloidal). Thus, claims 18 and 19 are not anticipated by Griffen.

The Examiner has rejected claims 1, 5, 6, and 23 as being obvious over Sahagen (5,526,112). The Examiner has considered claim 1 in its broadest possible light, and has provided a clever analysis to argue that claim 1 could be read broadly enough to include the flat ended four fiber arrangement of Sahagen. The applicants have amended claims 1 and 23 to clearly define over Sahagen, as the flat ended four fiber arrangement of Sahagen does not present a tapered tip. Therefore, it is respectfully submitted that claims

1 and 23, and all claims dependent thereon are clearly allowable over the art of record. Thus, the applicants will not argue the appropriateness of some of the other obviousness rejections, as they should be moot.

The Examiner has rejected claim 13 and 15-16 as being obvious over Wu et al. (6,023,340) in view of Wach et al. (6,416,234) or in view of Friedman (5,371,826). Claims 13, 15 and 16 are dependent on claim 11 which is allowable for reasons set forth above. However, it should also be noted that while Wach et al. does show a rounding, the rounding is not the type of rounding shown in the present application and now claimed. Thus, claim 13 is not rendered obvious over the cited art for this additional reason.

The Examiner has rejected claim 20 as being obvious over Sahagen or Griffen in view of MacDonald (5,044,723), and claim 21 as being obvious over the combinations made with respect to claim 20 further in view of Friedman. The applicants respectfully traverse these rejections on the grounds that claims 20 and 21 are dependent on claim 18 which requires that the fiber have a hemispherical or paraboloid distal end, and as set forth above, neither Sahagen or Griffen show such an arrangement. In addition, neither MacDonald nor Friedman provide such an arrangement. Thus, the combination of Sahagen or Griffen with MacDonald or MacDonald and Friedman fails to provide all of the limitations of claims 20 and 21, and claims 20 and 21 are therefore allowable over the cited art.

The Examiner has rejected claim 22 as being obvious over Wu et al. in view of Allison (5,812,729). The claim has been amended substantially, thereby rendering the Examiner's rejection moot. Claim 22 as amended corresponds closely to claim 1, except that the probe is defined as including a single fiber which has the substantially cubical corner, etc. This distinguishes over Sahagen in that the longitudinal axis cannot be the axis shown by the Examiner which utilizes multiple fibers of Sahagen.

The Examiner has rejected claim 24 as being obvious over Sahagen in view of Wu. According to the Examiner, while Sahagen does not state utilizing different probes, Wu teaches utilizing a plurality of probes for a plurality of different measurements. Therefore, according to the Examiner, it would be obvious to utilize different probe configurations to ensure differing resolutions depending on functional need. The applicants respectfully traverse this rejection for the following reason. There is no suggestion in Wu to use probes of different configurations together, and the language pointed to by the Examiner (col. 6, lines 15-30) makes no such suggestion. *On the contrary, Wu teaches that multiple measurements can be made using the same probe.* While Figure 1 may show four probes 30a, 30b, 30c, and 30d, Figures 3a-3d refer to probes 30a, 30'a, 30''a, and 30'''a and not probes 30a, 30b, 30c, 30d. Thus, there is no suggestion that probe 30a be of a first configuration, 30b be of a second configuration, etc. Therefore, claim 24 is clearly allowable over the cited art.

The Examiner has rejected claim 25 as obvious over Wu in view of Allison et al. (5,812,729). The Examiner's argument is based on a similar argument to the rejection of

claim 24; i.e., that Wu suggests using multiple probes, and mentions probes for both reflectance and fluorescence measurements. Thus, the Examiner opines that it would be obvious to use a probe with different numerical apertures for different measurements. The applicants respectfully traverse this rejection on the basis that *Wu actually teaches that both measurements can be made with a single probe*. Thus, the Examiner's hypothesis of incentive ignores the actual teaching of Wu (who is a co-inventor in the present case), and substitutes the Examiner's *post facto* analysis instead. Clearly, this is the use of improper hindsight in order to reconstruct the claimed invention.

In light of all of the above, it is submitted that the claims are in order for allowance, and prompt allowance is earnestly requested. Should any issues remain outstanding, the Examiner is invited to call the undersigned attorney of record so that the case may proceed expeditiously to allowance.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "David P. Gordon". The signature is fluid and cursive, with the first and last names being more prominent.

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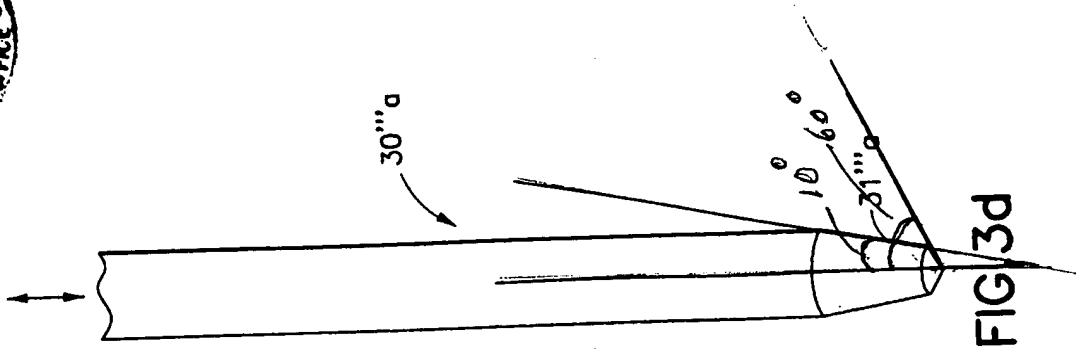


FIG. 3d

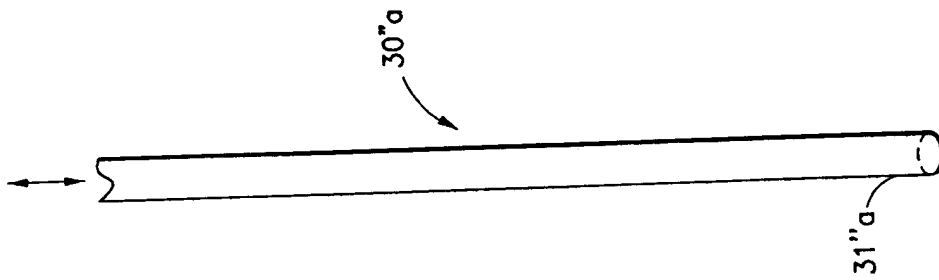


FIG. 3c

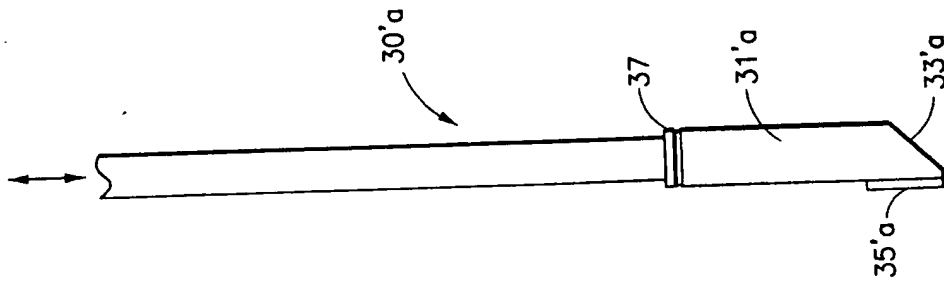


FIG. 3b

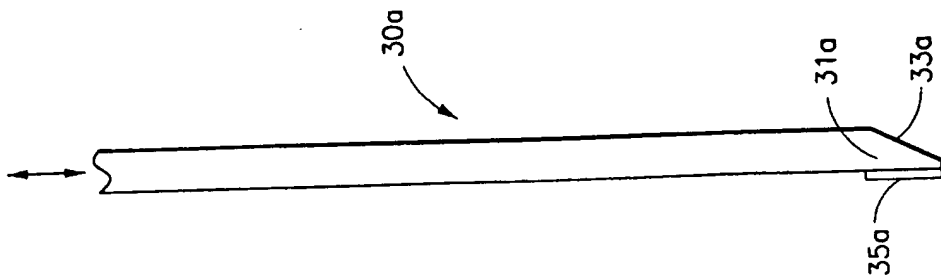


FIG. 3a